

# PRODUCT INFORMATION



## Glycoursodeoxycholic Acid-d<sub>4</sub> MaxSpec<sup>®</sup> Standard

Item No. 31555

CAS Registry No.: 2044276-17-5

Formal Name: N-[(3 $\alpha$ ,5 $\beta$ ,7 $\beta$ )-3,7-dihydroxy-24-oxocholan-24-yl-2,2,4,4-d<sub>4</sub>]-glycine

Synonyms: GUDCA-d<sub>4</sub>, Ursodeoxycholy Glycine-d<sub>4</sub>

MF: C<sub>26</sub>H<sub>39</sub>D<sub>4</sub>NO<sub>5</sub>

FW: 453.7

Purity:  $\geq 95\%$

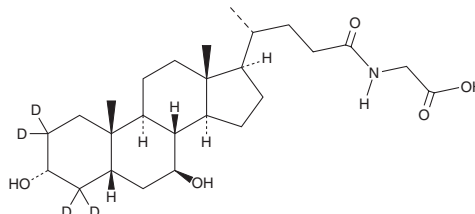
Supplied as: A solution in methanol; in a deactivated glass ampule

Concentration: 100  $\mu\text{g/ml}$  (nominal); see certificate of analysis for verified concentration

Storage: -20°C

Stability:  $\geq 5$  years; Stability testing is ongoing to ensure concentration accuracy. The certificate of analysis and product expiry date will be updated upon completion of testing.

Special Conditions: Store upright and unopened at -20°C. Warm to room temperature prior to opening. Light sensitive.



### Description

Glycoursodeoxycholic acid-d<sub>4</sub> (GUDCA-d<sub>4</sub>) is intended for use as an internal standard for the quantification of GUDCA (Item No. 21698) by GC- or LC-MS. GUDCA is a glycine-conjugated form of the secondary bile acid ursodeoxycholic acid (UDCA; Item No. 15121).<sup>1,2</sup> It has antioxidant effects *in vitro* in Barrett's esophagus cells and primary cultured rat neurons.<sup>3,5</sup> GUDCA reduces the levels of inflammatory cytokines and prevents cell death induced by unconjugated bilirubin (Item No. 17161) in an astroglial cell model of neonatal hyperbilirubinemia.<sup>4</sup> Oral administration of GUDCA (500 mg/kg per day) decreases the severity of symptoms and increases the amount of *A. muciniphila*, a commensal bacterial species commonly decreased in patients with inflammatory bowel disease (IBD), in a mouse model of colitis.<sup>2</sup>

GUDCA-d<sub>4</sub> MaxSpec<sup>®</sup> standard is a quantitative grade standard of GUDCA-d<sub>4</sub> (Item No. 31309) that has been prepared specifically for mass spectrometry or any application where quantitative reproducibility is required. The solution has been prepared gravimetrically and is supplied in a deactivated glass ampule sealed under argon. The concentration was verified by comparison to an independently prepared calibration standard. The verified concentration is provided on the certificate of analysis. This GUDCA-d<sub>4</sub> MaxSpec<sup>®</sup> standard is guaranteed to meet identity, purity, stability, and concentration specifications and is provided with a batch-specific certificate of analysis. Ongoing stability testing is performed to ensure the concentration remains accurate throughout the shelf life of the product. **Note:** The amount of solution added to the vial is in excess of the listed amount. Therefore, it is necessary to accurately measure volumes for preparation of calibration standards. Follow recommended storage and handling conditions to maintain product quality.

### References

1. Lefebvre, P., Cariou, B., Lien, F., *et al.* Role of bile acids and bile acid receptors in metabolic regulation. *Physiol. Rev.* **89**(1), 147-191 (2009).
2. Van den Bossche, L., Hindryckx, P., Devisscher, L., *et al.* Ursodeoxycholic acid and its taurine- or glycine-conjugated species reduce colitogenic dysbiosis and equally suppress experimental colitis in mice. *Appl. Environ. Microbiol.* **83**(7), e02766-16 (2017).
3. Brito, M.A., Lima, S., Fernandes, A., *et al.* Bilirubin injury to neurons: Contribution of oxidative stress and rescue by glycoursodeoxycholic acid. *Neurotoxicology* **29**(2), 259-269 (2008).
4. Fernandes, A., Vaz, A.R., Falcao, A.S., *et al.* Glycoursodeoxycholic acid and interleukin-10 modulate the reactivity of rat cortical astrocytes to unconjugated bilirubin. *J. Neuropathol. Exp. Neurol.* **66**(9), 789-798 (2007).
5. Goldman, A., Condon, A., Adler, E., *et al.* Protective effects of glycoursodeoxycholic acid in Barrett's esophagus cells. *Dis. Esophagus* **23**(2), 83-93 (2010).

#### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

#### WARRANTY AND LIMITATION OF REMEDY

Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

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